

Low Impact Development "On the Road to Codes"

**Partnership
Advisory Committee**

NOAA
 NC Coastal Nonpoint Source Program
 NC Division of Coastal Management
 NC Division of Water Quality
 Brunswick County
 New Hanover County

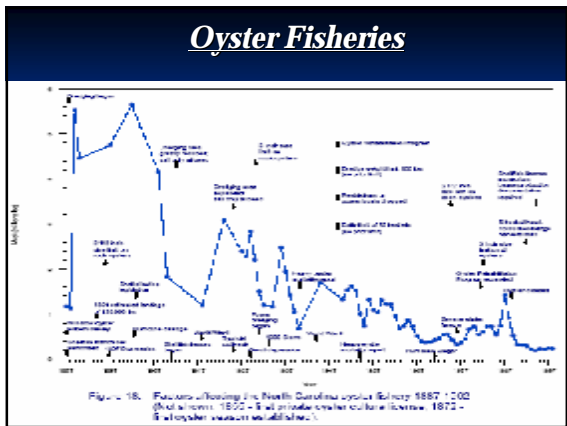
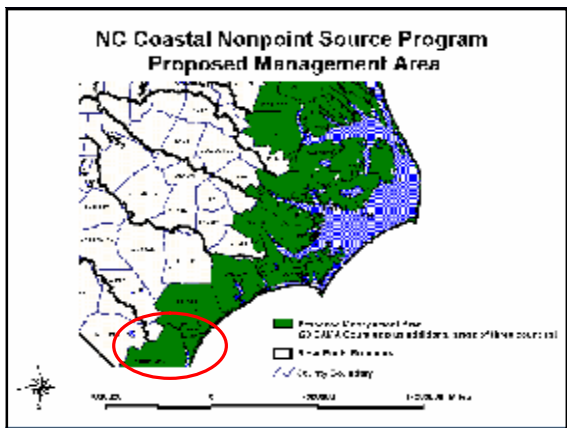
Other Committee Members

City of Wilmington
 Town of Surf City
 Home Builders Association
 NC State
 Cape Fear Keeper
 Consulting Firms
 Developers

Facilitated and Prepared by:
 North Carolina Coastal Federation
<http://www.nccoast.org/>
 &
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Presentation Outline

- North Carolina Coastal water resources issues.
- Why chose LID (goals / drivers / benefits)?
- Process used for developing the LID Codes.
- Some implementation issues.
- Proposed LID policies.
- Outline LID Guidance Manual.



Brunswick County North Carolina Economic Development Commission "Quality of Life"

Welcome to the Brunswick Islands and greater Brunswick County!

Nearly fifty miles of **pristine shoreline** along our five barrier islands offer countless opportunities for relaxation, outdoor activities and family fun. Golfers, thinking they have died and gone to heaven, will find no fewer than 30 champion courses in Brunswick County. Add to that the many courses within driving distance in nearby Myrtle Beach and Wilmington, and you can see why many consider this the golf capital of the world. Many hotels and cottage realtors offer special golf packages and will assist you in scheduling tee times. **Fishermen will find 22 species of fish in the surf** and even more in the **fertile waters** in and around the **Intercoastal Waterway**. Six area piers will take you further into the surf while **head boats** and **charter** boats are available for deep sea

Why LID?

Goals / Objectives / Drivers

- n Sustain quality of life
 - Depends on sustaining the integrity of river water resources.
- n Failure of current management approaches
- n Coastal Area Management Act
 - Meet use-designation
 - Use best technology
 - Need for Urban Retrofit
- n Watershed Restoration efforts
- n NPDES Program

Why Chose LID?

- n Universally applicable
- n Economically sustainable
- n Ecologically sustainable
- n Added value (nature sells!)
- n Lower costs (construction, maintenance & operation)
- n Multiple benefits (air, water, energy, property values)
- n Silent on growth management
- n Encourages public stewardship
- n Common sense approach

Process

January 30, 2007 to June 30, 2007

- n * Recognize need and establish direction for change
 - n "Series of Round Tables"
 - n Need to Improve Stormwater Technology
- n * Secured Grant Funding (NCCF)
- n * Establish Technical Advisory Teams (NCCF)
- n * Scoping Meeting with TAC (All)
 - n Define LID
 - n Identify Goals / Issues / General Implementation Strategy
- n Prepare draft LID manual of practices (*In progress*)
- n TAC meeting to revise draft manual (*April*)
- n Prepare draft code language and final draft manual
- n TAC Meeting to finalize code and manual (*May*)
- n Final report, code and manual (*June*)
- n Local government adoption process (*July - ?*)

Some Issues to Address

- n Conflicts with State SWM requirements
 - n Show LID meets performance standards (quantity vs. quality)
 - n Allowable BMP's
- n Conflicts with Roadway standards
- n Review process (time / conflicts)
- n Unique soils and hydrology
- n Need for hybrid systems
- n Need for urban retrofit
- n Special Areas
- n Education (government, developers, consultants & public)
- n Long term maintenance inspection & enforcement
- n Simple analytical approach

Proposed LID Policies

- n Additional Tools
- n New development
 - n Voluntary but must show LID is not practical
 - n Highly Encourage use of "No Cost" LID techniques
 - n Highly Encourage use in Special Areas
- n Urban Retrofit and Redevelopment
 - n Required Maximum Extent Practical @ 50% value

LID Design Guideline Outline

- n Chapter 1. Introduction
 - n Purpose of the Manual
 - n Stormwater Goals
 - n LID Benefits and Findings
- n Chapter 2. Stormwater Management Issues
 - n Effects of Urban Development
 - n Problems with Conventional Approaches
- n Chapter 3. LID Overview
 - n Definition and Purpose
 - n Philosophy / Principles / Practices / Process

LID Design Guideline Outline

- n Chapter 4. New Development Site Design
 - n (Residential / Commercial / Industrial)
 - n Design process
 - n Soils and Climate Considerations
 - n Site planning and design strategies
 - n Conservation of nature features
 - n Minimize impacts
 - n Maintain time of concentration
 - n Integrated Management Practices
 - n Pollution Prevention

LID Design Guideline Outline

- n Chapter 6. Redevelopment Site Design
 - n Defining stormwater goals
 - n Site planning
 - n Architectural treatments
 - n Integrated management practices
- n Chapter 7. Analytical Methods
 - n Simple design spread sheet

LID Design Guideline Outline

Chapter 8. Design Standards

- n Site design principles
 - n Array of techniques
- n Bioretention / Rain Gardens
- n Disconnection
- n Sand Filters
- n Vegetated Swales
- n Permeable surfaces
- n Buffers
- n Reforestation
- n Green roofs
- n Rain water collection and use
- n Amended soils
- n Infiltration devices
- n Underground storage
- n Manufactured Devices
- n Pollution prevention

LID Design Guideline Outline

- n Chapter 9 Maintenance Inspection and Enforcement
 - n Agreements
 - n Maintenance guidance
 - n Enforcement actions

Questions?

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